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The Intermountain Region's...

TIMBER STORY

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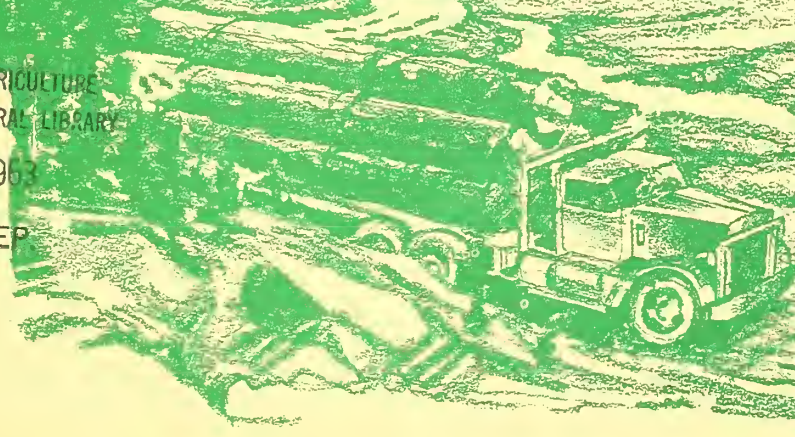
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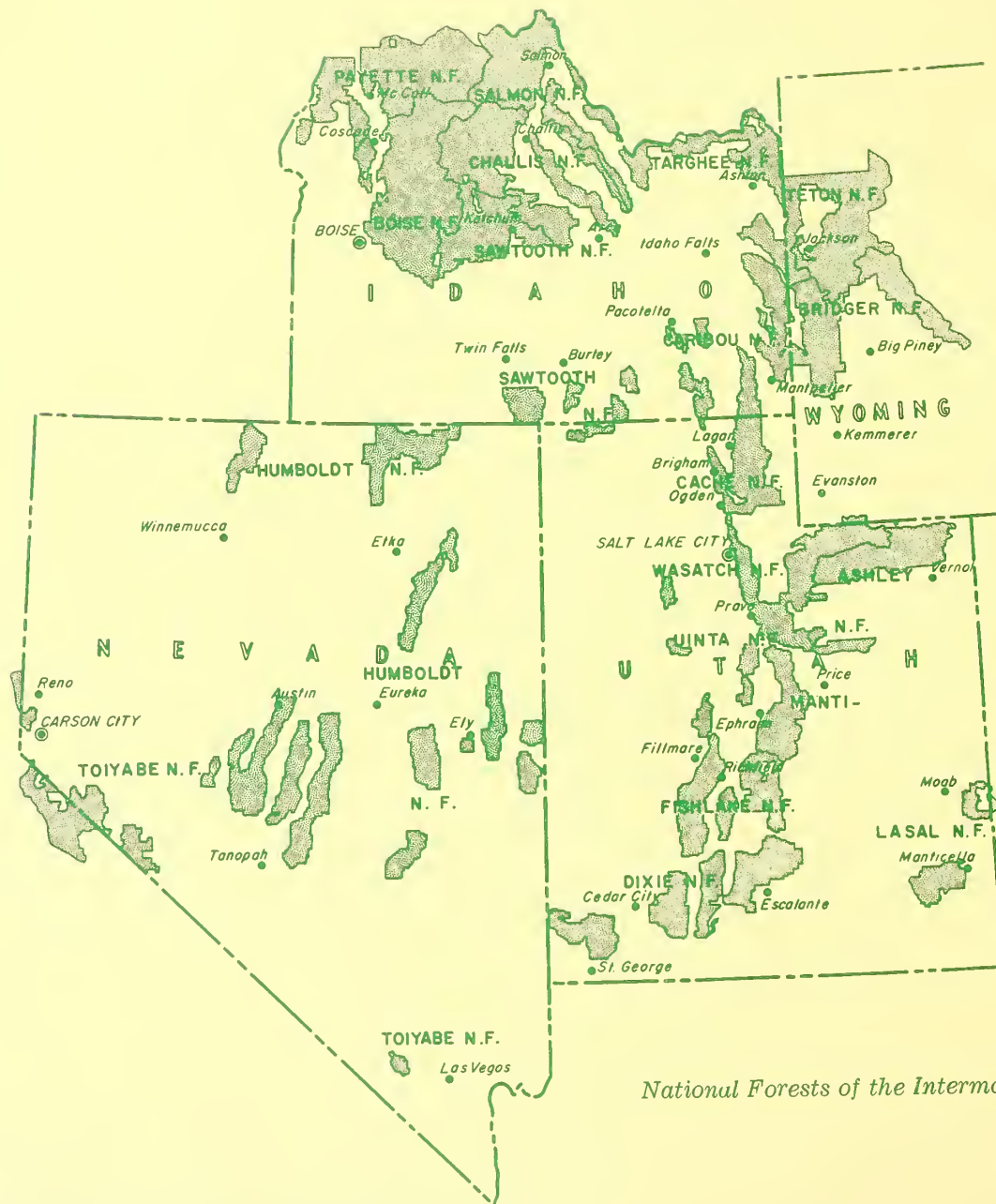
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National Forests of the Intermountain Region



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FOREWORD

Timber is a renewable crop which, during its long period of growth, provides many benefits to man. Where the forest is young and vigorous, vistas of majestic grandeur can be viewed, productive wild-life habitat is provided, and cool clear water finds its way to streams and rivers. As a timber stand grows, people find many kinds of recreation in its shelter. Thinnings may provide wood fibre or poles; upon complete maturity the trees provide wood for construction, homes, paper, chemicals, packaging, and a multitude of other products. After the harvest, little trees are planted or start naturally from seed and the cycle starts again to provide for the generations of tomorrow. Thus, timber management is a key feature of multiple use as practiced on the National Forests.

Within these pages unfolds the timber story in the Intermountain Region from the unplanned cutting of the early days to the managed forests of today. As can be seen from the charts and pictures, the demand for National Forest timber has increased many fold in the past forty years primarily because of our population increase and the development of our national economy and security. This demand has also manifested itself in increased forest recreation, need for water, and all the other forest benefits.

This is a story of the Forest Service's sound professional management program to produce maximum crops of high quality timber, within the multiple-use program, to supply a successful timber industry and propagate our forests for their many values. Only through integrated multiple use of timber, wild-life, outdoor recreation, forage and water can the National Forests give the biggest return to the greatest number of Americans in the long run. Public Law 86-517 — The Multiple Use-Sustained Yield Act of 1960 — emphasizes this vital concept of forestry today.

FLOYD IVERSON

Regional Forester



CHAPTER I — Eras of Timber Management and Use

Before 1900

Forest management in the Intermountain Region has a historic development based on needs and timber supplies. Up to the turn of the century the primary needs were for fuel, shelter, and supplies for the mining industry. Practically no management existed up to this time. The most accessible stands were “high-graded” and utilized in the settlement of the West.



1900 - 1915

Railroad logging prevailed and large areas were clear cut along railway spur tracks penetrating the timberlands. The Forest Service began its first management controls on this type of cutting by leaving some seed trees to reforest the area. Timber production from the Intermountain National Forests was 31 million board feet in 1912.*

*Note: Board Foot = One foot square and 1 inch thick or equivalent.





1930 - 1950

The selection system of cutting was the primary system of management, marking the oldest mature and overmature “high-risk” trees for cutting. This was termed an “economic” cut.

World War II brought heavy demands on the National Forests for crating, packaging, and construction lumber. The public demand for finished lumber also grew and with it came an accompanying expansion of the lumbering industry. The annual cut from the National Forests of the Intermountain Region increased to over 140 million board feet.

1915 - 1930

Forest management was based on a silvicultural approach largely copied from European forestry. Partial cuts were made and horses were utilized for skidding the logs to the decks. Aside from the cut from small portable mills, the larger timber cuttings were for railroad ties from the lodgepole pine forests and supplying a growing timber industry. Because of the depression of the thirties, the timber cut dropped to about 20 million board feet annually.



1950 - Present

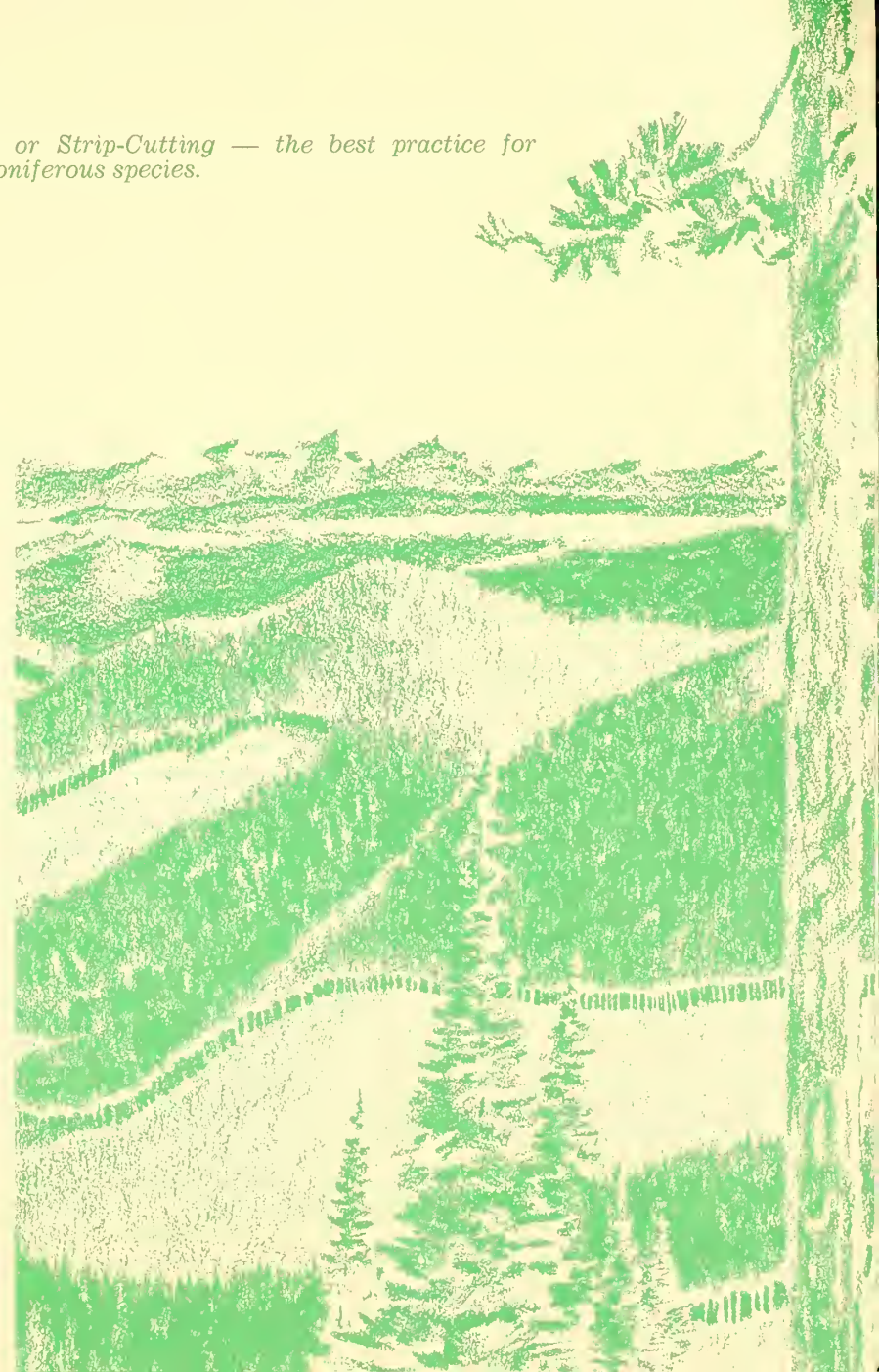
The advent of new industries into the region bolstered by a skyrocketing population in the West has been accompanied by a change from extensive to a more intensive forest management. Each unit of a timber stand is considered individually and management judgements and decisions are based on the Region's multiple-use management direction and the stand's characteristics and requirements for regeneration and growth.

The annual cut of timber from Intermountain National Forests reached 338 million board feet in 1962—ten times over that of 50 years ago.



Modern loader placing a bundle of logs on a truck for transportation to mill.

Pattern or Strip-Cutting — the best practice for many coniferous species.



Before and After

Gibbonsville, Idaho
1898



Area around Gibbonsville, Idaho, was cutover to supply lumber, mining timbers, and fuel for the community and the industry.

Gibbonsville, Idaho
1955



Today under Forest Service management and protection the area supports a vigorous stand of second growth ponderosa pine and Douglas fir timber for the future.

CHAPTER II — *The Timber Industry*

In addition to their great service to the public of providing the vast array of timber products to a growing economy, the forest industries foster many jobs not only in their own operations but by purchasing a variety of heavy machinery and plant facilities from other industries. One out of 30 people in the United States is employed in the wood-producing or wood-using field. For example, the publishing industry, which depends wholly on paper, produces goods valued at 4.4 billion dollars annually and employs 864,000 workers. The Intermountain Region possesses extensive stands of lodgepole pine, spruce, true fir, and aspen; all of which are potentially valuable in paper and pulp production.

Timber access roads on the National Forests may also help make the “hinterlands”, with their myriads of lakes and streams, more accessible and usable for the public.

Wide opportunities still exist in the Region for new wood-converting industries, particularly in pulp and paper, because many areas possess rich timber resources but lack the local industries geared to process the timber supplies.

Employment Created



Loading Pulp Bolts

Stacking Lumber





The mill at the left is typical of a small local operation which provides a few jobs and helps supply very limited local demands for lumber. It operates entirely on National Forest timber, cutting only one or two million board feet a year. Utah has 119 mills, Nevada 4; Idaho 144; and Wyoming 50 — a total of 317 sawmills in the Intermountain Region, tallied in 1962.

At right is a large industrial plant in Idaho which cuts 100 million board feet of lumber annually, much of it for export out of the Region. It operates partly on state and private and partly on National Forest timber, and supplies a considerable payroll to the area.

Total payroll in the Region contains the names of about 3,500 people directly employed by the wood-converting industry.



During the past decade the average annual per capita consumption of timber in the Intermountain Region has been 250 board feet. With a substantial population increase in this area, the lumber industry has served an important function in supplying and maintaining this increased need for wood products.

To aid the wood-using industries over the years, the United States Department of Agriculture's Forest Service has taken the following steps:

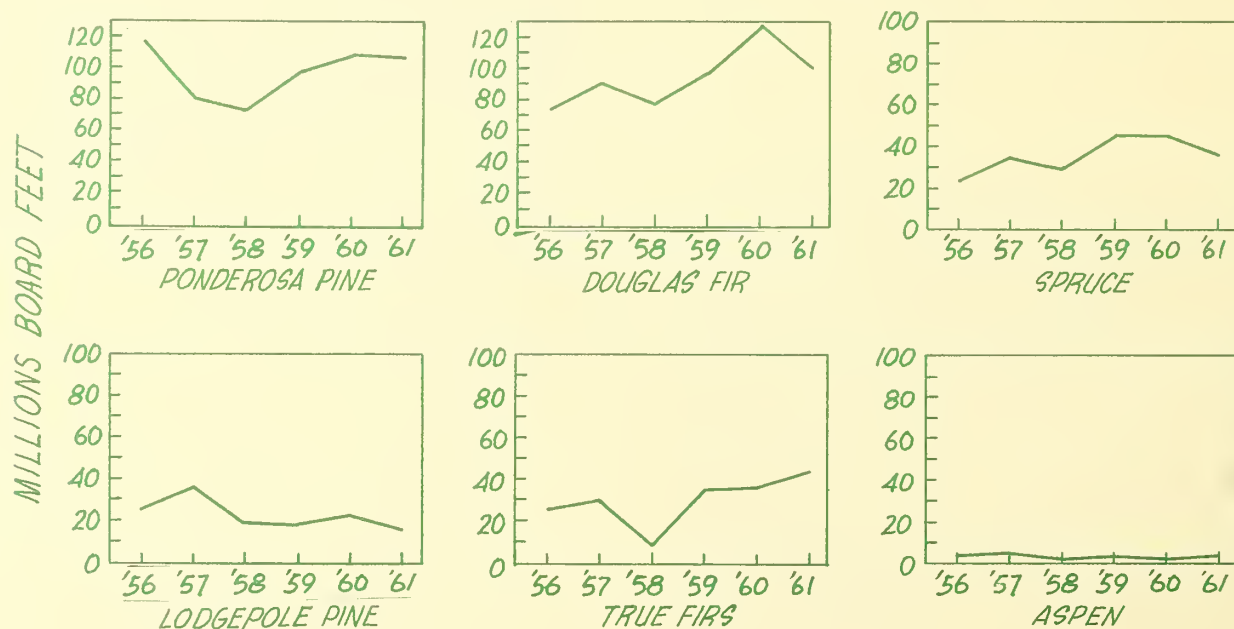
1. Maintained up-to-date methods of determining wood volume (scaling).
2. Adjusted stumpage rates according to the fluctuating markets for lumber. National Forest stumpage (standing timber) prices in the West are adjusted every three months to reflect market changes.
3. Planned and constructed access roads on a long-time basis.
4. Controlled insects and diseases to preserve timber for harvest.
5. Developed successful reforestation methods for valuable timber species, and provided a regional nursery to produce a continuous supply of new trees.
6. Adjusted timber appraisal methods to meet current economic conditions.
7. Continuously endeavored to find new methods of forest management, protection, and utilization adapted to modern industrial concepts of logging and manufacturing.

In a speech before the Western Pine Association meeting in Portland, Oregon, September 1962, Secretary of Agriculture Orville L. Freeman called attention to the Government's 40-year program which will increase National Forest timber output from 10 to 13 billion board feet a year, reforest 3 million acres a year, double the fire protection program, build many more forest roads, and step up the research program in forest products. This program is directed toward increasing the flow and the uses of wood as one of America's most vital raw products and thus stimulating the important role of the timbering industry on the American scene.

CHAPTER III — Notes on Timber Production and Value

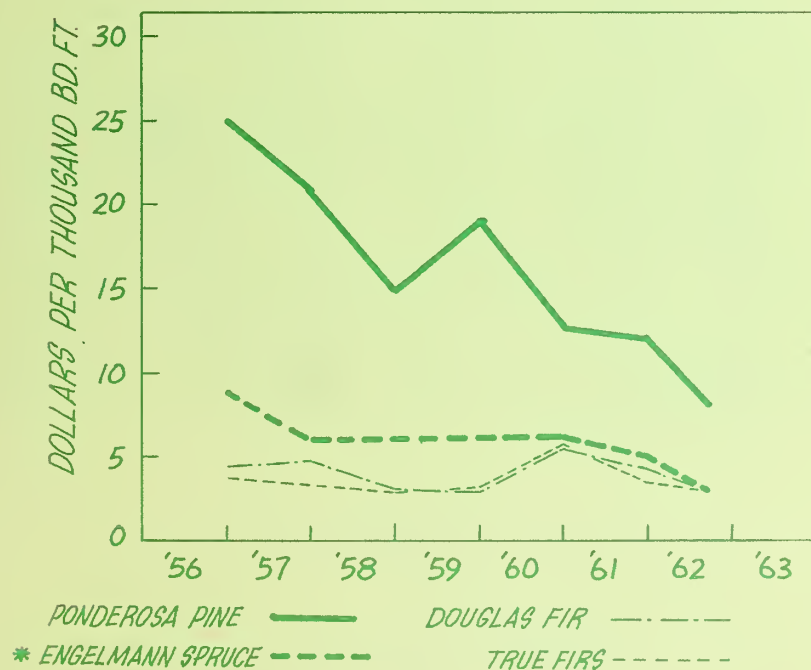
A growing stand of timber is frequently compared to a sum of invested money, with the annual increment of growth being comparable to the interest earned on the investment. The interest is collected on healthy growing timber until it is harvested or until the investment is converted into cash. Then all the interest as well as the original investment in the stand flows into the local economy. This makes timber-growing good business from an investment point of view alone, disregarding all the other forest benefits.

Good businessmen maintain constant checks on their production, their goals, their contributions to community growth, and their investments. The following series of charts depict these factors for the public's long term investments in the National Forests and the yields from these investments in products and dollars.



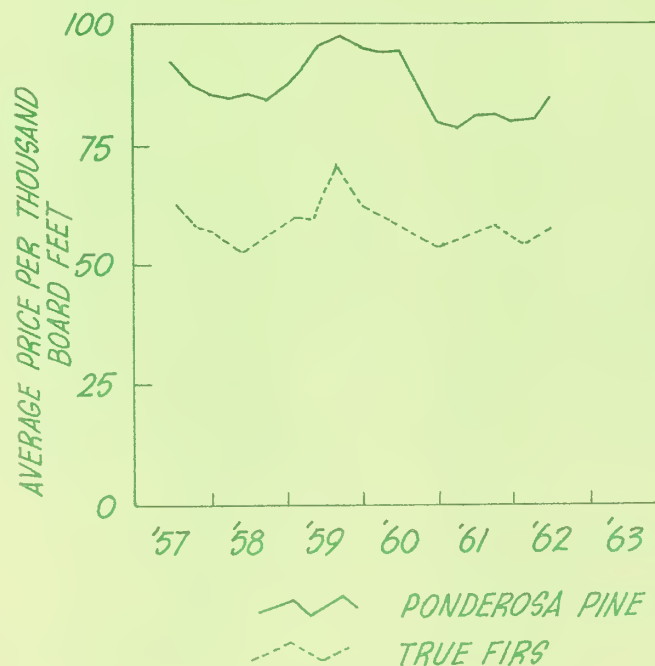
Timber Production
By Species
Intermountain Region
1956—1961

Stumpage price trends for the Intermountain Region's timber species.
1956—1962



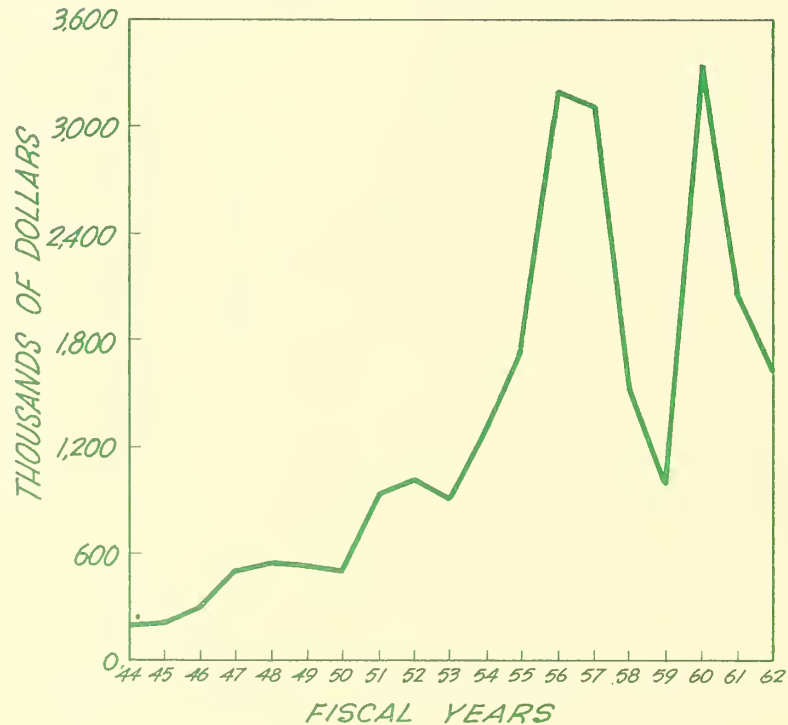
*Includes lodgepole pine.

Wholesale lumber price trends compiled by the Western Pine Association — 1957—1962 — for Ponderosa pine and true firs.

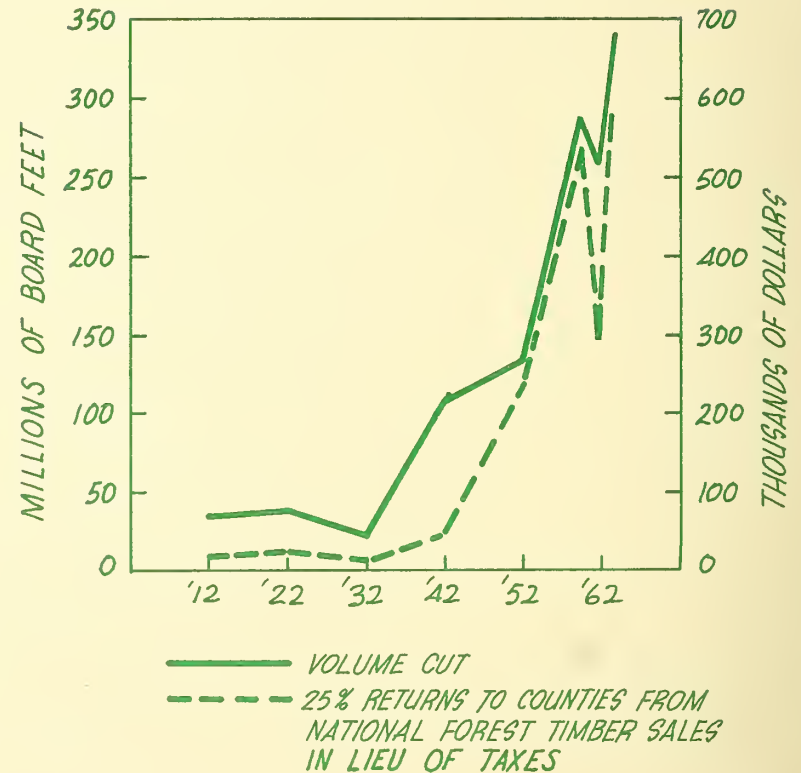


In comparing these two charts it is seen that Intermountain stumpage selling price trends compare favorably with national trends.

Income from sale of annual cut of timber from the Intermountain National Forests.



Trend of Volume cut and return to counties.



The depressed lumber market conditions and slight drop in volume cut is primarily responsible for the reduction in receipts and county returns in 1959 and 1962.

CHAPTER IV — ABC's of Timber Management and Protection

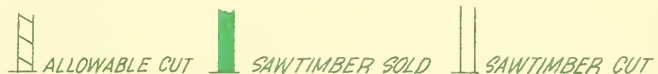
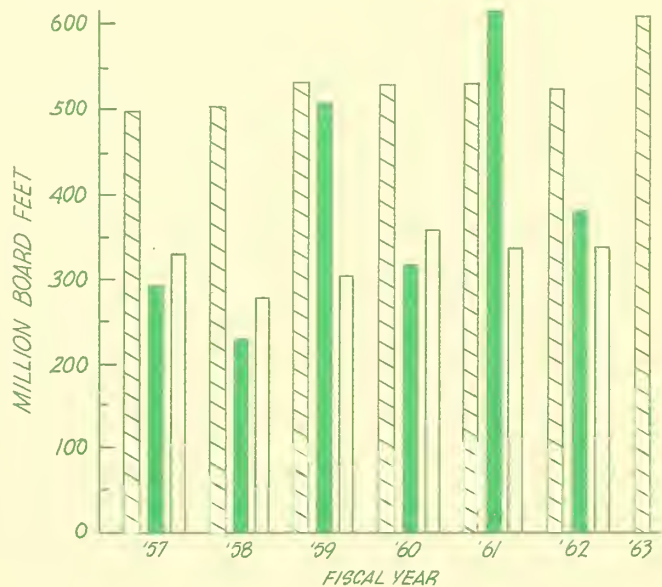
A. Timber Management and Silviculture

Timber management is the art of applying technical forestry principles and sound business methods to a forested area. National Forest lands are managed for many purposes; timber production, wildlife, forage production, water, and recreation. Timber management plans establish the harvesting, protection and regeneration objectives for the commercial timber growing areas of the National Forests. These plans utilize detailed inventories, growth potential, and multiple-use management decisions. They regulate the timber harvest in harmony with sound objectives and needs. The Intermountain Region's timber management plans and allowable cut estimates are continuously being revised for each of the Region's eighteen National Forests. Reinventories are made at ten-year intervals. The present estimated allowable cuts shown on the chart will be revised after each reinventory. Allowable cuts may be increased or decreased as access and utilization is improved; as fires, insects, or disease reduce volumes; or as new knowledge or additional uses modify or increase availability of timber supplies. The accompanying chart compares allowable cut with actual annual cut from 1957 through 1962.

The science and art of establishing and tending forests to get the best timber products and the maximum production possible from each acre of forest land is known as silviculture. The elements of silviculture are planting, natural regeneration, thinning, pruning, stand sanitation, and the prevention and control of diseases, insect depredations, and fires.

Silviculture is practiced continuously under intensive forestry from the inception of a timber stand until it is harvested, according to the needs of a stand correlated with the plan of management for a working circle. Then the cycle begins again. Thus it is the basic science which keeps forest land producing endlessly and at its best.

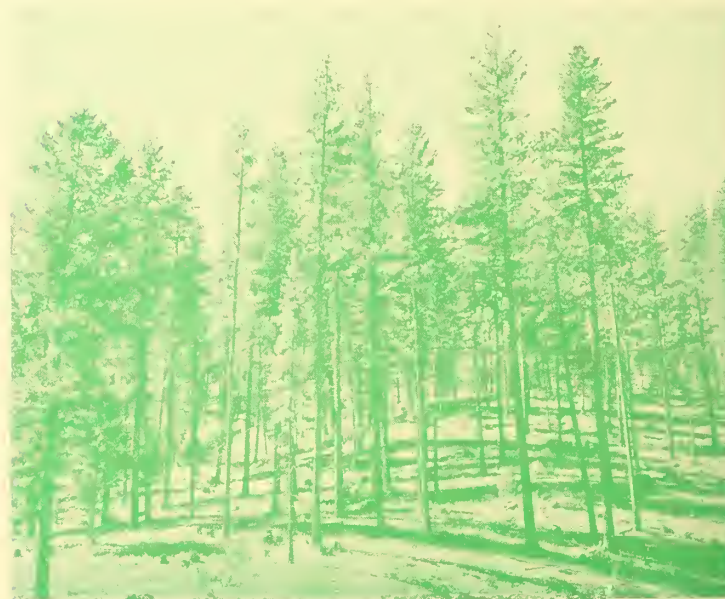
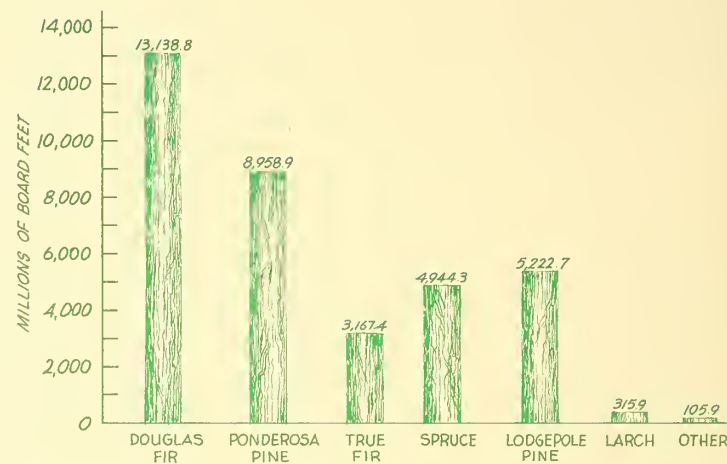
*Comparison of Allowable Cut with Timber
Actually Cut and Sold From the
Intermountain National Forests 1957—1962*



Current estimates of volumes of the Intermountain National Forests timber species are shown in the chart at the right.



Forester marking a tree according to good management practices.



A young stand of ponderosa pine thinned to improve its capacity for growth.

B. Roadbuilding

An essential part of each timber sale is the analysis of available and required transportation facilities. Major points considered include coordinated needs of other resources, construction, maintenance, and reconstruction requirements of all roads needed to move the timber to a public highway or common carrier system at the most economical cost.

The transportation requirements of each sale are thoroughly considered. Then, in the timber sale contract between the Forest Service and the successful bidder, the responsibilities of each, relative to the transportation systems, are thoroughly spelled out.

Such factors as erosion control and the prevention of stream damage are part of the contract. Most roads constructed into the National Forests for access to the timber are also thoroughly appraised by the Forest Rangers for coordination with other uses of the forest resources. Fishing, hunting, recreation, scenic values, fire control, and public travel are among the many important uses considered. Every road built on the National Forests today is considered for all its multiple-use aspects now and in the future.

Roads which are built primarily to gain access for timber harvest may also have one or more other uses; i.e., fire, insect, disease control, or for public recreation travel.

About 40% of the Region's timber resource lacks adequate access. Thus an important phase of a stepped-up harvesting and timber marketing program will be wide extension of the timber access road system on most of the National Forests. The value of large presently inaccessible acreages of low value species is insufficient to carry the costs of main road construction. Such roads must be built with public funds if this timber is to be harvested now.



Constructing a timber access road.

C. Appraisals

The act of June 4, 1897, states that each commercial sale of National Forest timber will be made "for not less than its appraised value." Thus the appraised or "fair market value" for the timber must be determined before issuing a permit for a small sale or before advertising large timber offerings to the public. Basic responsibility for the appraisals rests with the forest officer authorized to issue the permit or execute the contract for the Government.

The "fair market value" or "market value," terms used synonymously by the Forest Service in stumpage appraisals, is the price acceptable to the willing buyer and the seller, both having knowledge of the relevant facts and not under compulsion or pressure to deal.

In computing the market value, upon which the timber sale is based, the foresters consider all costs to the purchaser; such as roadbuilding, slash disposal, logging, erosion control, hauling, and milling the timber into a salable product. These costs are subtracted from the average selling price of the product with a resultant conversion value. From this conversion value the purchaser is allowed a margin for profit and the risks attending the hazardous and difficult operation of converting mature timber to lumber and other products. The United States Government receives the residual as stumpage value.

The final price for stumpage, after the appraisal has been made and the sale advertised at the appraised price, depends on the competition for the timber. When there are several interested purchasers and bidding is lively, National Forest timber may sell higher than the appraised price.

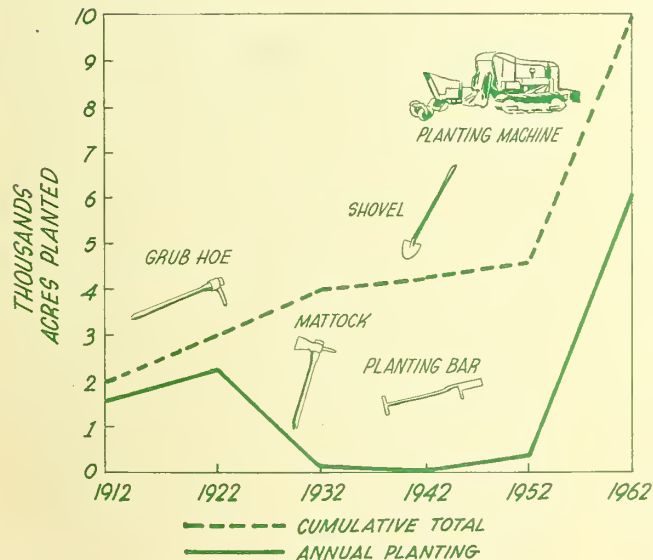


Foresters making an initial field reconnaissance as the first step in appraising timber.

D. Sale Area Betterment

Under the Knutson-Vandenburg Act of June 9, 1930, the Secretary of Agriculture is authorized to withhold a portion of the money received for the timber to place the cutover land in satisfactory silvicultural condition. This money is called "K-V funds" and may be used by the Forest Service on the sale areas after harvesting for:

1. Preparing the seedbed for planting tree seeds.
2. Preparing the cutover land for planting young trees.
3. Procuring or growing nursery stock.
4. Protection of growing stock from rodents, insects, diseased, and grazing livestock.
5. Doing cultural stand improvement work; such as, thinning, pruning, removal of undesirable plants and trees, and disease control.



The Progress of Tree Planting on the Intermountain National Forests.

1912—1962



Lifting trees at Forest Service Nursery in Boise, Idaho.

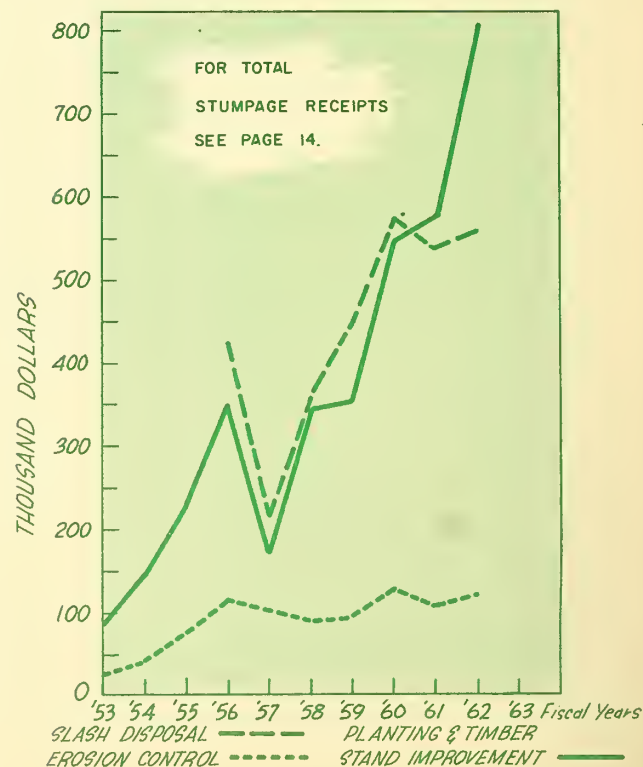
Just as in harvesting farm crops, the land must be placed in the proper condition for growing the timber of the future. Much of this work is done through the use of funds deposited to the K-V account. K-V thus constitutes a direct contribution: (1) to benefit the communities depending on the lands for timber, (2) to bring the forest lands once more into production, and (3) to maintain or increase the timber cut which will be possible under the prescribed management system.

Planting Ponderosa Pine



Collections of trust funds on the Intermountain National Forests.

1953—1962



E. Harvesting

Kinds of harvesting.

The cable car with a load of logs.



This is a high lead yarder with a radio controlled cable car. It is versatile and can be used to log either a clear-cut or release-cut area, because of its ability to skid horizontally along the slope. This is a clear cut on a 60% slope.

F. Erosion Control

Most timber-growing areas are also water-producing areas. It is highly important to retain the soils not only because of their value in keeping the timber-growing land productive but as good watersheds.

During the sale-planning period, all conditions which might contribute to erosion are studied including the natural physical factors of soil, geology, precipitation and vegetation. Relative erosion hazards are assigned to these factors for each set of conditions on the sale area. Logging roads, kind, location, and drainage are carefully planned. Kinds of logging to be permitted depend on the erosive conditions of the soil. Provisions are made for erosion control on areas where erosion is expected. Various kinds of erosion control used on logging areas are re-vegetation, plugging or obliteration of skid trails, and contour trenching.

Contour trenching — the first ground preparation step for successful tree planting in ponderosa pine type.



G. Insect and Disease Control

Forest insect and disease outbreaks, like human disease epidemics, are not permanently stopped once they are suppressed. Constant vigilance and prompt action are both required to prevent new outbreaks from starting.

New and more efficient control methods are constantly being devised to reduce the steadily mounting costs of forest protection. For example, air spraying of spruce budworm costs \$1.00 or less per acre—a lot of protection at a reasonable price. Treatment of bark beetles or dwarfmistletoe disease is more costly because individually attacked trees must be located and treated.

Forest insects and diseases are no respecters of man-made boundaries. Therefore, prevention and suppression of the destructive organism frequently is a cooperative affair among the agencies and private individuals whose lands are involved.

Insect Control



Spraying for bark beetles

Disease Control



Clearing an area for dwarfmistletoe control

G. Insect and Disease Control (continued)

Forest Resource Report No. 14 "Timber Resources for America's Future" ranks forest diseases and insects nationwide as the principal destructive agents of timber. Combined they destroy 7.3 billion board feet of timber annually and cause a loss in volume growth of 21.2 billion board feet.

Out of a total annual loss of sawtimber of 43.8 billion board feet nationwide, insects and diseases are responsible for about 66 percent of the loss, while fire, weather, and other causes make up 34 percent of the loss. Losses of younger trees in the seedling, sapling, and pole size classes are equally heavy; and though their loss is not measured in volume, it is even more serious because of its definite impact on the forests of the future.



Planned Spraying to Control Spruce Budworm

G. Insect and Disease Control (continued)

As in other forest management and protection activities, control programs are coordinated with the overall multiple-use administration to insure balanced land management.

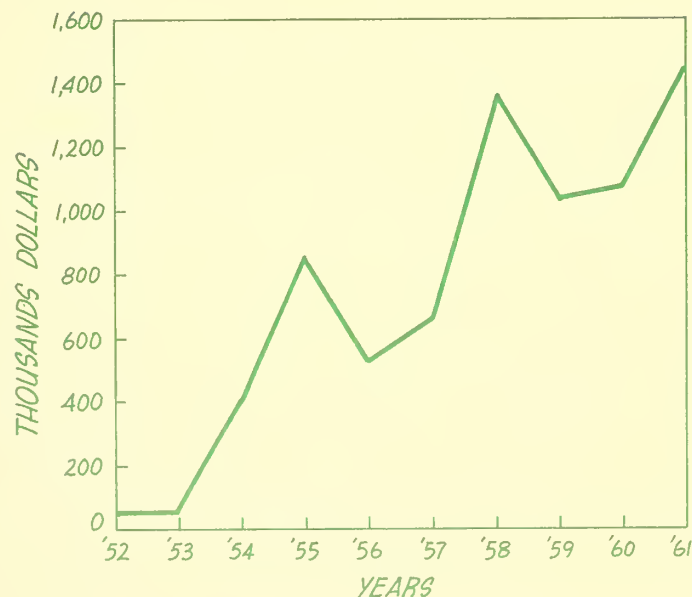
For example, the application of a pesticide must be checked for any effect it may have on fish, wildlife, grazing animals, humans utilizing the same areas or on the streams or bodies of water within the area.

Road construction for control activities must be done within the framework of multiple-use policies developed for the area.

A ceaseless vigil is essential to detect threatening attacks and to suppress the destructive organisms. To maintain a healthy industry sustained on a continuous flow of forest products is vital to the region's economy. This in turn helps stabilize communities. Protection of aesthetic values and watershed functions are other desirable effects of a good insect and disease suppression program.

Chemist from the Bureau of Health, Education and Welfare taking a water sample from a stream adjacent to a bark beetle control project to determine if there is contamination. No contamination was found and there has been no damage to fish or wildlife from the control of this beetle.

*Expenditures for Insect and Disease Control
Intermountain National Forests
1952—1961*



H. Fire Prevention and Control

Effective fire control is essential in well-balanced multiple-use land management to:

1. Assure an adequate supply of usable water.
2. Minimize downstream flood damage.
3. Protect wildlife habitat.
4. Prevent destruction of forage for livestock and wildlife.
5. Assure a continuous supply of timber.
6. Protect the forest recreation values.

Fires cause serious damage to these resources.

The Forest Service objective in fire control is to hold fire losses to a level determined by the resource managers as adequate to preserve the value of the resources under their protection and to do this job safely.

The job of fighting forest fires on rough forest terrain is very complex, requiring efficient detection and lookout systems, highly trained supervisory personnel and fire fighters, and an ever-ready supply of equipment and materials for any size fire. The use of all types of modern aircraft and mobile ground equipment is essential in today's modern fire fighting organization.

Like insects and diseases, fires are no respecters of man-made boundaries. Congress has, therefore, provided for cooperative fire fighting organizations and protection of Federal, state, and private forest lands alike.

The Smokey Bear forest fire prevention program, with which everyone is familiar, is a joint effort of the Federal Government, the state forestry, and the National Advertising Council to secure maximum protection of all forest lands nationwide.

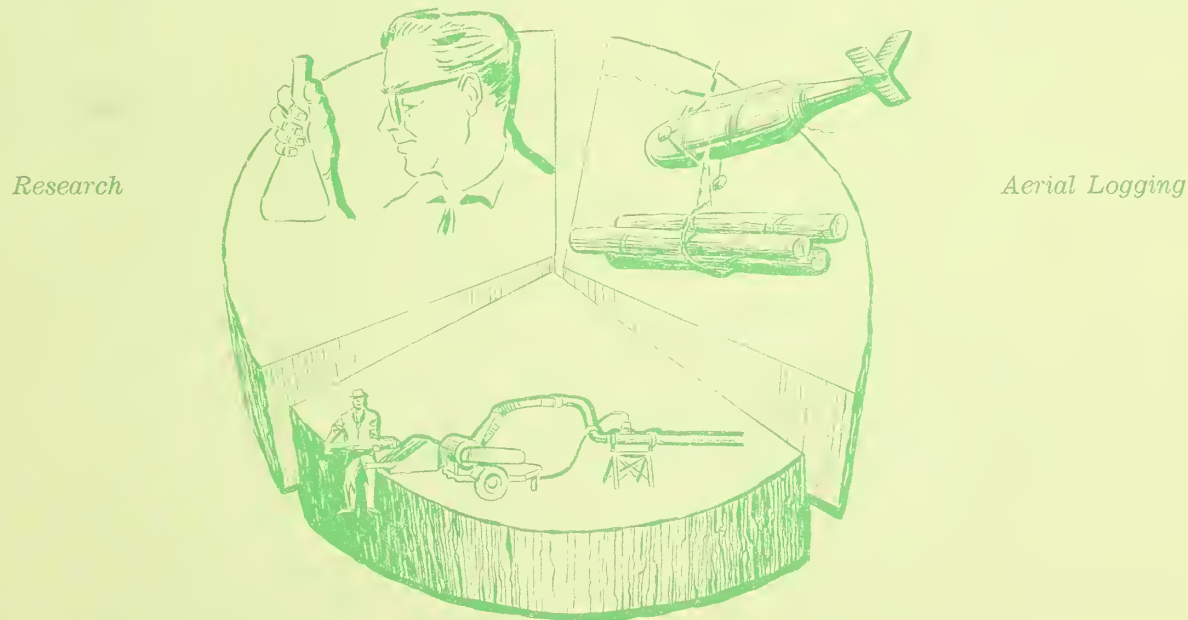


Aerial drop of bentonite for fire suppression.

CHAPTER V — The Timber Supply — Present and Future

Action for the future.

1. National Forest land management must be intensified to assure coordinated uses of the resources.
2. More efficient protection methods must be developed against forest diseases, insects, and fires.
3. The utilization of forest products must be improved to eliminate waste. Recent technological developments promise great progress in this field.
4. Other important expanding fields requiring intensified research are genetics, planting and survival of all tree species, increased viable seed production, improved and new logging methods, new transportation methods, and new manufacturing methods.



Pipeline transportation of wood chips for conversion to fibers and cellulose.

The Timber Supply Outlook

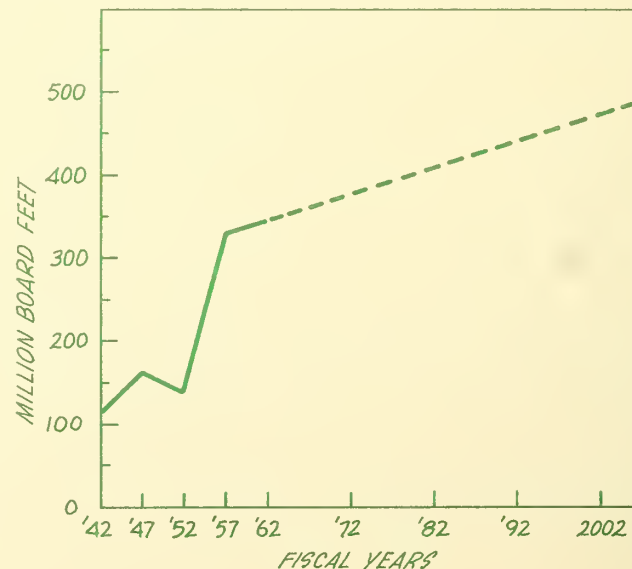
One of the objectives of the U. S. Forest Service is to raise and harvest sufficient timber in coordination with other uses to help meet the current national requirements and to build up the timber resources so that expected rising demands can adequately be met. We hope that the pages of this booklet have helped bring an insight into how the resources of the Intermountain National Forests are harmonized with these nationwide objectives.

Attainment of these objectives is dependent upon proper multiple-use management by forest land managers through coordination of all uses, adequate forest protection, improved forest practices, genetically improved strains, progressively better use of the timber and the prevention of waste. Research directed toward solving the perplexities of today's intensive land management is, needless to say, essential.

Thus, the National Forests, managed under the principles of multiple use, to produce a sustained yield of products and services, can be eternally dedicated to the health, welfare and security of their owners—the American people.

The extension of timber cut from Intermountain National Forests to the year 2002, based on the present rate of increase.

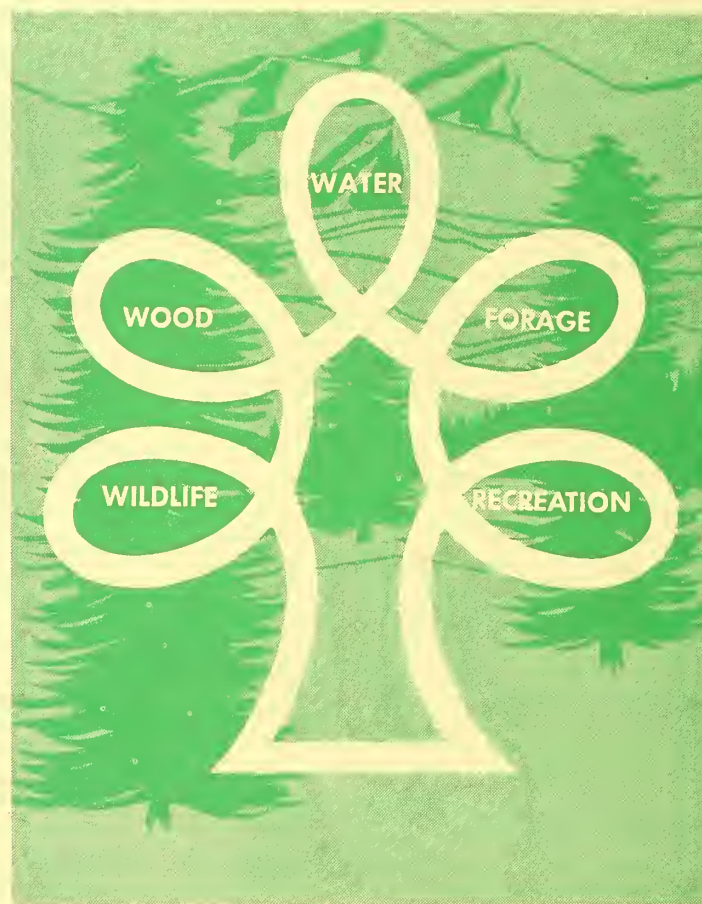
Forty years from now the Intermountain National Forests are expected to be producing 225 board feet of timber per acre per year to reach their full capacity by present standards.





Timber — an Integrated Portion of the
Multiple Use and Sustained Yield Act of June 12, 1960

“Sustained yield of the several products and services” means: The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forests without impairment of the productivity of the land.



“Multiple use” means: The management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people.